

Please amend the claims such that the results are as follows:

1. - 4. (Canceled).

5. (Currently amended) An optical amplifier system for use in an optical communication network, the optical amplifier system comprising:

a span of dispersion compensating fiber configured to carry optical signals; and  
a temperature control system positioned proximate to the span of dispersion compensating fiber and configured to control the temperature of the environment directly surrounding the span of dispersion compensating fiber to reduce polarization mode dispersion fluctuation in the span of dispersion compensating fiber ~~The optical amplifier system of claim 1~~ wherein the temperature control system comprises:

a temperature chamber configured to substantially enclose the span of dispersion compensating fiber;

a sensor system configured to measure a temperature in the temperature chamber and provide an indication of the temperature;

at least one heating element configured to emit heat in the temperature chamber;  
and

a controller configured to control the at least one heating element based on the indication of the temperature in the temperature chamber.

6. (Original) The optical amplifier system of claim 5 wherein the controller is configured to control the at least one heating element by varying a voltage applied to the at least one heating element.

7. – 8. (Canceled).

9. (Currently amended) An optical amplifier system for use in an optical communication network, the optical amplifier system comprising:

a span of dispersion compensating fiber configured to carry optical signals; and  
a temperature control system positioned proximate to the span of dispersion compensating fiber and configured to control the temperature of the environment directly surrounding the span of dispersion compensating fiber to reduce polarization mode dispersion fluctuation in the span of dispersion compensating fiber; The optical amplifier system of claim 1 further comprising:

a pump system configured to pump the span of dispersion compensating fiber;  
wherein the optical amplifier system is configured to amplify the optical signals traveling over the span of dispersion compensating fiber due to the Raman Effect.

10. – 14. (Canceled).

15. (Currently amended) A method of operating an optical amplifier system comprising a span of dispersion compensating fiber configured to carry optical signals, wherein the optical amplifier system is configured for use in an optical communication network, the method comprising:

positioning a temperature control system proximate to the span of dispersion compensating fiber; and  
controlling the temperature of the environment directly surrounding the span of dispersion compensating fiber with the temperature control system to reduce polarization mode dispersion fluctuation in the span of dispersion compensating fiber; ~~The method of claim 11~~ wherein the temperature control system comprises a temperature chamber configured to substantially enclose the span of dispersion compensating fiber, a sensor system, at least one heating element, and a controller, the method further comprising:  
    in the sensor system, measuring a temperature in the temperature chamber and providing an indication of the temperature;  
    in the at least one heating element, emitting heat in the temperature chamber; and  
    in the controller, controlling the at least one heating element based on the indication of the temperature in the temperature chamber.

16. (Original) The method of claim 15 wherein controlling the at least one heating element comprises:

    controlling the at least one heating element by varying a voltage applied to the at least one heating element.

17. – 18. (Canceled).

19. (Currently amended) A method of operating an optical amplifier system comprising a span of dispersion compensating fiber configured to carry optical signals, wherein the

optical amplifier system is configured for use in an optical communication network, the method comprising:

positioning a temperature control system proximate to the span of dispersion

compensating fiber; and

controlling the temperature of the environment directly surrounding the span of

dispersion compensating fiber with the temperature control system to reduce polarization mode dispersion fluctuation in the span of dispersion compensating fiber; The method of

claim 11 wherein the optical amplifier system further comprises a pump system, the method further comprising:

pumping the span of dispersion compensating fiber with the pump system;

wherein the optical amplifier system is configured to amplify the optical signals traveling over the span of dispersion compensating fiber due to the Raman Effect.

20. (Canceled).